

## **REMARKS**

Favorable reconsideration and allowance of this application are requested.

### **1. Discussion of Amendment**

By way of the amendment instructions above, several of the pending claims have been revised for the purpose of clarity. For example, claim 4 has been amended so as to clarify that the polymer segments and of the copolymer are both polyamide or polyester as supported by page 4, lines 20-23. (*"Suitable polymer segments in the copolymers ... are those defined above for the polycondensate, in particular polyesters ... and aliphatic polyamides."*)

In addition, the ASTM version has been updated in claim 9. The redundant reference to the ASTM measurement standard has been deleted from claim 10. No question of "new matter" has been presented by such amendment in view of the comments below in Section 2.

Non-elected claims 11-19 have been retained in the subject application for the purpose of rejoinder with elected claims 1-10 following allowance of the same. Thus, rejoinder of such non-elected claims 11-19 is solicited following allowance of the elected claims. The identifiers for claims 11-19 has been updated so as to correctly note their "withdrawn" status.

Therefore, following entry of this amendment, claims 1-19 will remain pending herein, of which claims 11-19 have been withdrawn from consideration as directed to a patentably distinct invention non-elected for prosecution herein. Reconsideration and allowance of elected claims 1-10 is therefore solicited in view of the remarks which follow.

## **2. Response to 35 USC §112, second paragraph**

As noted above, the ASTM reference has been clarified to reflect the version that was in effect at the time the priority filing for the subject application was accomplished, namely ASTM D3985-02. In this regard, the Examiner will appreciate and can take Official Notice of the fact that unless stated to the contrary the most current ASTM standard is what those skilled in the art would be practicing. For this reason, many US patents are granted which do not in fact recite the particular ASTM date version as evidenced for example by USP 6,709,735, 7,241,481 and 7,632,907 (each of which claims generically ASTM D3985 without stating a particular version year). It surely cannot be the Examiner's position that these issued patents are invalid under 35 USC §112 for such a reason. As such, the presently pending claims are likewise statutorily compliant with 35 USC §112.

The other amendments above are believed to address the rejections advanced under 35 USC §112, second paragraph. Withdrawal of such rejection is therefore solicited.

## **3. Response to Substantive Rejections**

Prior claims 1-6 and 8 attracted a rejection under 35 USC §102(b) as allegedly anticipated by Cyr et al (USP 6,455,620) while claims 9-10 attracted a rejection under 35 USC §103(a) as allegedly "obvious" and hence unpatentable over Cyr et al. Claim 7 was separately rejected under 35 USC §103(a) as allegedly obvious from the

combination of Cyr et al in view of Raff et al (Northwest Science, Vol. 44, no. 3, pp 184-205 (1970)).<sup>1</sup> As will become evident from the following discussion, all pending claims herein are patentably distinguishable over Cyr et al alone or taken with Raff et al.

**A. Response to 35 USC §102(b) Rejection**

Cyr et al disclose compositions comprising an oxidation catalyst and polyethers that include substituted or unsubstituted, polyalkylene glycol copolymers and blends with other polymers including polycondensation polymers.

Applicants respectfully disagree with the Examiner's conclusion that Cyr et al anticipates pending claims 1-6 and 8. Specifically, presently pending claim 1 defines an oxygen scavenging composition comprising:

- a polycondensate,
- a copolymer comprising polyoxy-1,2-propanediyl segments and polymer segments and
- an oxidation catalyst,

wherein the copolymer is the copolymerisation reaction product of the corresponding monomers in the presence of functionalised polyoxy-1,2-propanediyl segments.

Cyr et al disclose polyethers containing polymers for oxygen scavenging, which include unsubstituted poly(alkylene glycol) having an alkylene chain of 1 to 3 carbons (see column 3, lines 18 to 20 of Cyr et al). This disclosure does not include polyoxy-1,2-propanediyl, as such molecule is a substituted polypropylene oxide.

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<sup>1</sup> Although not specifically stated in his rejection of claim 7, the Examiner has apparently employed the "Examiner's personal experience, University of Tennessee c. 1992" as a basis for his rejection of such claim under 35 USC §103(a). (See page 8, line 5 of the Official Action.) Therefore, since the Examiner's rejection is based *inter alia* on facts within his personal knowledge, applicants respectfully request the Examiner to supply an affidavit as to such facts and to afford the applicants with an opportunity to rebut the same pursuant to 37 CFR § 1.104(d)(2).

Only in Comparative Example 36 of Cyr et al is poly(propylene glycol) employed. However, the disclosed poly(propylene glycol) is not disclosed to be in combination with a polycondensate. As such, claims 1-6 and 8 are novel over Cyr et al.

#### **B. Response to 35 USC §103(a) Rejections**

The comments above are equally germane to the *unobviousness* of the pending claims over Cyr et al. Moreover, applicants note that the present invention relates to an oxygen scavenging composition which exhibits better oxygen barrier properties than those known in the prior art. In this regard, it has surprisingly been found that the fact that the polymer segments have been formed from copolymerization of the corresponding monomers with functionalized polypropylene oxide segments rather than having these functionalized polypropylene oxide segments react with already polymerized polymer segments causes a considerable difference in oxygen scavenging properties of the final, diluted composition. It is thus the fact that the copolymer is copolymerized with corresponding monomers in the presence of functionalized polyoxy-1,2-propanediyl segments that influences properties of the oxygen scavenging composition.

The presently claimed invention thus employs copolymerization in order to obtain the copolymer that is present in the oxygen scavenging composition. This yields a composition with less oxygen permeability, as is exemplified by Examples I – VIII in Table 2 on page 10 of the originally filed specification. In contrast, the prior art mentions oxygen scavenging compositions in which poly propylene oxide segments are reacted with already polymerized polymer segments, i.e., so-called reactive extrusion. Such a prior art method yields inferior oxygen permeability, which is exemplified by Comparative Examples A and B, wherein oxygen scavenger layer made of blend no. A1 and A2 is employed. Both blends A1 and A2 are made by reactive extrusion (see page 9, lines 4-6 of the present application). Comparative Examples A and B (Table 2 on page 10 of the present application) show a much higher oxygen permeability compared

with the compositions according to the presently claimed invention (i.e., Examples I – VIII in Table 2 on page 10).

Cyr et al relate to polyethers containing polymers for oxygen scavenging. Cyr et al mention in column 7, lines 31-34 that:

“...the poly(alkylene glycol) may either be physically blended with the thermoplastic polymer, covalently bound to the thermoplastic polymer in the form a copolymer [sic] or combinations thereof.”

However, nowhere in Cyr et al is it mentioned that oxygen scavenging compositions comprising a polycondensate, a copolymer comprising polyoxy-1,2-propanediyl segments and polymer segments and an oxidation catalyst has a beneficial effect on the oxygen barrier properties, let alone that preparation of the copolymer according to present pending claim 1 leads to better oxygen barrier properties.

Thus oxygen scavenging compositions according to the present invention show a very low oxygen barrier, e.g., when measured according to ASTM standard D3985 under dry conditions on a film having a thickness of 60 µm. While applicant agrees that the oxygen barrier varies with the thickness of the layer, pending claims 9 and 10 require that the oxygen barrier property be measured at a specific thickness of 60 µm.

Therefore, in view of the above, applicants suggest that all claims pending herein are patentably unobvious over the applied publications of record herein. Withdrawal of all rejections advanced under 35 USC §103(a) is therefore in order.

#### **4. Fee Authorization**

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed

**STROEKS et al**  
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herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By:           /Bryan H. Davidson/            
Bryan H. Davidson  
Reg. No. 30,251

BHD:dlb  
901 North Glebe Road, 11<sup>th</sup> Floor  
Arlington, VA 22203-1808  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100